UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/663,812	09/15/2000	Julian C. Chen	YOR9-2000-0144US1 (8728-	3772

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EXAMINER
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ART UNIT	PAPER NUMBER
2655	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/663,812	CHEN ET AL.
	Examiner	Art Unit	
	Brian L. Albertalli	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>14 October 2005</u>.

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-5,8,10-16 and 19-28</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-5,8,10-16 and 19-28</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed October 14, 2005 have been fully considered but they are not persuasive.

Regarding the argument "there are fundamental distinctions between Chu and the claimed invention regarding function and purpose" (see page 8, 3rd and 4th paragraph of Applicant's arguments), it is noted that the limitation of managing textual archives of words (managing a textual database, as worded in the claims), is in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Furthermore, Chu explicitly discloses that the method and system according to the invention can be used for applications such as generating an automatic index (see column 5, lines 38-42). As highlighted by the Applicant's arguments, creating an index for a textual database allows for the "management" of the textual database (page 8, 4th paragraph of Applicant's arguments).

Regarding the argument that Chu does not disclose "identifying a data type" of

the textual data (see page 9, 1st paragraph of Applicant's arguments), the Applicant's

arguments seem to suggest that identifying a "data type" requires identifying the style,

or font, of the textual data (e.g. handwriting text, typed text, etc.). However, there is no

requirement in the claims that a "data type" be a type of textual style. Rather, Chu

meets the requirement of the broadly claimed "identifying a data type of the textual data"

because the system provides support for several languages (column 5, lines 32-33).

The identification means 120 uses a language model 124 specific to the language of the

textual data that is being analyzed (column 5, lines 28-32). In order to used the correct

language model for the input textual data, the identification means 120 must "identify a

data type" (i.e. what type of language) of the input textual data.

Regarding the argument that Chu does not disclose, "generating an index based

on semantic units of words" (see page 9, 2nd paragraph of Applicant's arguments), Chu

discloses that an automatic index is generated using "several or all possible word

candidates" (column 5, lines 38-42). The possible word candidates are comprised of

sub-word units, such as syllables (i.e. semantic units of words), therefore the index is

"based on" the semantic units of words (column 6, lines 26-30). Furthermore, since the

index is based on the semantic units of words, the textual data is indexed "with" the

corresponding semantic units (i.e. the semantic units are used in the creation of the

index).

2.   Therefore, the rejections made in the previous Office Action are maintained.

3.   Furthermore, with regard to the use of official notice in the rejections of claims

10, 14, 19, 25, and 26, it is noted that the applicant has not made any attempt to

traverse the assertion of official notice, therefore the well known in the art statement is

taken to be admitted prior art (see MPEP 2144.03).

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by
> another filed in the United States before the invention by the applicant for patent or (2) a patent
> granted on an application for patent by another filed in the United States before the invention by the
> applicant for patent, except that an international application filed under the treaty defined in section
> 351(a) shall have the effects for purposes of this subsection of an application filed in the United States
> only if the international application designated the United States and was published under Article 21(2)
> of such treaty in the English language.

5.   Claims 1, 2, 15, 16, 22, and 24 are rejected under 35 U.S.C. 102(e) as being

anticipated by Chu (U.S. Patent 6,374,210).

        In regard to claims 1, 15, and 16, Chu discloses a method and program storage

device for managing a textual database, the method comprising the steps of:

        receiving textual data (Fig. 1, input means 100 receives an input string of

connected text, column 5, lines 8-10);

identifying a data type of the textual data (identification means 120 segments an input string using a vocabulary specific to a language and several languages are supported, column 5, lines 24-26 and lines 30-33);

transcribing the textual data into corresponding semantic units of words using a recognition system for the identified data type, wherein the recognition system performs transcription by decoding the textual data using a language model and phonetic dictionary of semantic units (identification means 120 segments the input identification data on using a lexicon (dictionary) 122 and language model 124 where the dictionary 122 and language model 124 are selected according to the language of the textual data, column 5, lines 28-33; the lexicon for segmenting the textual data is based on sub-word units, column 6, lines 12-20 and line 64); and

generating index based on semantic units of words for indexing the textual data with the corresponding semantic units (the sequence of possible word candidates, which are based on the sub-word units, are used to generate an automatic index, column 5, lines 38-42 and column 6, lines 26-30).

Furthermore, since Chu discloses the semantic units of words are used to create an index, the textual data must inherently be stored, since an index, by definition, is a data table that points to stored information.

Still further, Chu discloses the recognition system comprises an OCR (optical character recognition) system for transcribing typed text (column 5, lines 20-23), and an AHR (automatic handwriting recognition system) for transcribing handwritten text (column 5, lines 43-47).

In regard to claim 2, Chu discloses the semantic units comprise syllables (column 6, lines 12-20).

In regard to claim 22, Chu discloses identifying a data type of the textual data comprises identifying types including handwritten (column 5, lines 43-47) and typed text (column 5, lines 20-23).

In regard to claim 24, Chu discloses the recognition system comprises an OCR (optical character recognition) system for transcribing typed text (column 5, lines 20-23), and an AHR (automatic handwriting recognition system) for transcribing handwritten text (column 5, lines 43-47).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 3, 8, 11-12, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu, in view of Umemoto (U.S. Patent 6,470,334).

In regard to claim 3, Chu discloses the semantic units comprise any linguistically based sub-word unit (column 6, lines 12-16).

Chu does not disclose that the semantic units comprise morphemes.

Umemoto discloses a method for creating an index to search documents that analyzes an input document (textual data) by morpheme analysis to index the documents by basal words (morphemes, column 8, lines 30-41).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chu to index input textual data based on morphemes in order to index languages such as Japanese, which does not clearly articulate breakpoints between words.

In regard to claim 8, Chu does not disclose the step of generating an index comprises generating a hierarchical index where a semantic unit index points to one or more data modes.

Umemoto discloses a hierarchical index where a semantic unit index points to one or more data modes (the word address is stored to register every word in sequential order, column 9, lines 1-7 and lines 15-19).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chu to generate a hierarchical index where a semantic unit index points to one for more data modes, in order to provide an index of smaller capacity so as to enable faster access in a retrieval search, as taught by Umemoto (column 15, lines 13-17).

In regard to claims 11, 12, 20, and 21, Chu discloses the step of generating an index (column 5, lines 38-42), which implies that textual data corresponding to the index would be searched.

Chu does not disclose searching the textual database for target textual data using the semantic index.

Umemoto discloses searching the textual database for target textual data using the semantic index (column 7, lines 39-43). Furthermore, a target word must necessarily be converted into a string of semantic units to search the index, because the index comprises semantic units found in the input textual data. Therefore a target word must also be converted to semantic units in order to match relevant semantic unit entries in the index. Additionally, Umemoto discloses an automatic word boundary marking system that is applied to a search query (words in the input query are searched, column 7, lines 39-43).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chu to search the textual database using the semantic index, so that documents in languages such as Japanese, which does not clearly articulate breakpoints between words, could be searched, as taught by Umemoto (column 15, lines 1-9).

8.   Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu, in view of Holt et al. (U.S. Patent 5,960,447).

Chu does not disclose the textual data is associated with audio data and indexing

comprises indexing the audio data with the semantic units or time-stamping the

semantic units.

Holt et al. discloses a tagging and editing system that links textual data (word

processor file Fig. 2, 60) to an audio file (53). Each semantic unit (word) in the textual

data (word processor file 60) is indexed in the audio file (column 4, lines 1-18). The

semantic units (words) are time-stamped (a time code pointing to a particular starting

point in the audio file) (column 4, lines 5-7). A recognition system (52) receives speech

as an input from the microphone (50) and transcribes the speech to textual data (text

words) (column 3, lines 16-20). A speech recognition system typically utilizes a

language model based on semantic units (e.g. phonemes in a HMM word model).

Adding indexes to textual data transcribed with a recognition system

corresponding audio to data that is time-stamped, as taught by Holt et al., to a system of

managing a textual database would allow the playback of associated audio for each

recognized semantic unit, thereby helping in correction and proof reading of a textual

database, as taught by Holt et al. (column 4, lines 29-31).

It would have been obvious to one of ordinary skill in the art at the time of

invention to add time-stamped indexes to audio data corresponding to the textual data

in order to help in the correction and proofreading of a textual database.

9.   Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu, in

view of Umemoto, and further in view of Chang et al. (U.S. Patent 5,268,840).

Neither Chu nor Umemoto disclose a target word is converted using a character-to-semantic unit mapping table.

Chang et al. disclose a character-to-semantic unit mapping table (Fig. 6, column 7, line 65 to column 8, line 8).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Chu and Umemoto to use a character-to-semantic unit mapping table, in order to provide an efficient method for morphologizing text (i.e. convert from characters to semantic units), as taught by Chang et al. (column 4, lines 65-67).

10.   Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu, in view of Vinsonneau et al. (U.S. Patent 5,319,745).

Chu does not disclose different data types include handwritten text or typed text of different font or styles of a given language.

Vinsonneau et al. disclose a method for scanning and indexing text that identifies different fonts of a given language (column 10, lines 45-49).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chu to identify different fonts of a given language, so that the fonts could be indexed, thereby allowing a user to limit their search of textual data by font.

11.   Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu, in view of Syeda-Mahmood (U.S. Patent 5,953,451).

Chu does not disclose indexing the semantic units to stored handwritten textual data based on handwriting biometric data.

Syeda-Mahmood discloses a method for scanning and indexing text that indexes according to handwriting biometric data (orientation, skew, intra-word separation of a single author, column 3, lines 2-5 and lines 36-38).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chu to index the semantic units based on handwriting biometric data, so that a user could limit their search of textual data to a certain individual.

12.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu, in view of Umemoto, and further in view of Vinsonneau et al.

Neither Chu nor Umemoto disclose the one or more modes of data comprises words or pictures.

Vinsonneau et al. disclose a method for scanning and indexing text that includes a pointer to words and pictures (words in the text are indexed as well as the location of the words in the initial image from which the textual data is derived, column 10, lines 45-54).

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Chu and Umemoto to include pointers in the index to words and pictures, so the words could be associated with the original image files from which they were derived, and thus subsequently searched.

13.   Claims 10, 19, 25, and 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Chu, in view of the Applicant's admitted prior art.

In regard to claims 10, 19, 25, and 26, Chu does not disclose generating

separate indexes for each data type, then converging the separate indexes for each

data type into one universal index.

The Applicant's admitted prior art discloses it is notoriously well known in the art

to create separate indexes for each data type, so a user can restrict a search to one

particular data type. Furthermore official notice is taken that it is notoriously well known

in the art to converge separate indexes, so a user can search all available data types

with one search entry.

It would have been obvious to one of ordinary skill in the art at the time of

invention to modify Chu to generate a separate index for each data type and to

converge the separate indexes into a universal index, so a user would have the

flexibility to search data types individually or search all data types at once.

14.   Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chu, in

view of Umemoto, and further in view of the Applicant's admitted prior art.

In regard to claim 14, Chu does not disclose displaying search results.

Umemoto discloses the results of a search are displayed (column 7, lines 47-53).

It would have been obvious to one of ordinary skill in the art at the time of

invention to modify Chu to display the results of the search so the user could view the

results.

Neither Chu nor Umemoto specifically disclose the target textual data is displayed starting from a corresponding semantic unit in a user query and commencing one of forward and backward for a given length based on a user request.

The Applicant's admitted prior art discloses it is notoriously well known in the art to display search results with the target search result as well as surrounding textual data so that the user can determine the context in which the search result is used in the original document.

It would have been obvious to one of ordinary skill in the art at the time of invention to further modify the combination of Chu and Umemoto to display forward or backward for a given length from the target textual data so that the user can determine the context in which the search result is used in the original document.

Conclusion

15.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hahn et al. (*A Study on Utilizing OCR Technology in Building Text Database*) disclose most indexing methods for Asian languages are morpheme based. Hackett et al. (*Comparison of Word-Based and Syllable-Based Retrieval for Tibetan*) disclose an experiment involving indexing textual data by syllables.

16.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Albertalli whose telephone number is (571) 272-7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. R. YOUNG
PRIMARY EXAMINER

BLA 12/7/05